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ABSTRACT

A study was conducted to determine the characteristics that key decision makers deem important for the curricula of Minnesota's technical institutes in the year 2000. The technical institutes in question are postsecondary institutions that offer both day school and adult extension programs. The study focused on the actual process of curriculum design and decision making rather than on the changing content of vocational education or administrative structures. A survey instrument was sent to 497 individuals from the following 10 key decision-making groups: the Minnesota State Board of Vocational-Technical Education; state board staff; technical institute directors, assistant directors, adult directors, curriculum specialists, financial aid coordinators, counselors, and instructors; and employers of technical institute graduates. Eighty-two percent of the surveys were returned. The greatest disagreement was between technical institute instructors and directors, employers and state board staff, and employers and technical institute directors. However, even the groups that disagreed the most still managed to agree 80 percent of the time. A detailed scenario for postsecondary vocational education curricula in Minnesota in the year 2000 was developed on the basis of the data obtained during the survey. The paper concludes with a scenario listing things that were deemed likely and unlikely to happen in the following areas: needs assessment, program access, articulation, program purpose, content identification, student evaluation, program format, lesson structuring, learning resources, and program evaluation. (MN)

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The Perceived Importance of Future Characteristics of Postsecondary Vocational Education Curriculum Among Key Decision-Making Groups*

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Introduction

Many changes have and are taking place in society and technology which impact the future of postsecondary vocational education. These changes require changes in vocational program design and implementation. The major question is, "What should the postsecondary vocational education curriculum look like in the future in order to accommodate those changes?"

The primary goal of this study was to identify the desired characteristics of the curriculum of the Technical Institutes (TIs) of Minnesota in the year 2000. The TIs in Minnesota are postsecondary institutions offering both day-school and adult extension programs. The majority of educational programming currently takes place within the institutions, while some is provided on-site in business and industry through customized vocational programs, and some through internships and clinical experiences.

Although the TIs have served the State well, postsecondary vocational education is changing rapidly and the need to determine the desired direction of that change was viewed as a high priority. Change can occur in many directions, and if change is not controlled or directed, the outcomes may or may not be desirable, appropriate, or effective.

Historically there has been substantial resistance to curriculum change. A great deal of time, effort and personal commitment is required to generate a curriculum. Therefore, in order for change to take place, the need for change must be made very compelling. In addition, the desired direction of change

needs to be very clear. Without clear direction, excuses for not changing become abundant.

Abbott and Eidell (1970) address the issue of educational innovation in the light of social change. Their observation is that the resistance of educational organizations to curriculum change may be viewed positively as stability. However, they claim that educational institutions are, by and large, non-responsive to primary changes in the social or technological environment which warrant curricular change. They claim that this resistance to curriculum innovation has negative implications for organizational survival. Burns and Brooks (1970) indicate that although education has traditionally lagged behind societal change, society can no longer afford this practice. They stress the need for both "a thorough revision of curricular content" (p. 4) and for a re-thinking of learning processes.

This study was based on the premise that the most probable direction of institutional change is the direction in which key decision-makers would like to see change take place. Although decision-makers are influenced by many factors such as legislation, research, the writings of futurists, and changing societal values and goals, the changes that actually occur reflect their own opinions, values, and preferences. This is particularly true when the various groups of decision-makers agree on the direction of desired change. If all of the decision-makers agree on a desired change, it is most likely going to occur. If the decision-makers disagree, it is difficult to predict the direction of change.

Tyler (1979) suggests that there are many groups which ought to be involved in curriculum planning. He suggests, "In general, the selection of persons in curriculum planning should be guided by two criteria: Whether they can furnish helpful information for curriculum planning and whether they will have a part to play in the implementation of the program" (pp. 65-66). Abbott and Eidell (1970) indicate that curriculum decisions are made in some way through the interdependent actions and opinions of all of the multiple groups involved.

This study focused on curriculum design and decision-making as contrasted with the the changing content of vocational programs, administrative structures, and legislative funding. The focus was on the various phases of the curriculum development process and how they should be accomplished in the future. For example, in light of what society might look like in the future: How should the need for new programs be determined? Where should programs be located? How should vocational education interface with industry and other institutions to design and implement programs? Who should make the decisions? What types of data should be used to support decisions?

Specific Objectives

1. To identify postsecondary vocational education curriculum characteristics which can be varied to accommodate expected changes in society.
2. To determine which curriculum characteristics are viewed as most important for the year 2000.
3. To identify the areas of agreement and disagreement between the perceptions of key decision-making groups regarding the future characteristics of the postsecondary vocational curriculum in the year 2000.

4. To develop a scenario of probable future postsecondary vocational education curricula in Minnesota in the year 2000.

Procedure

Development of a Conceptualization of Curriculum Development Characteristics

Literature was reviewed to identify the characteristics of vocational curriculum which might be varied in the future to accommodate societal and technological change. A curriculum characteristic was defined as a means of describing the nature of the courses contained in a curriculum, their organization, and elements which relate to planning and implementing those courses. The characteristics of concern did not focus on the types of occupations which should be taught in the programs and courses.

The literature revealed that although curriculum is at the heart of the educational process, few people have attempted to describe its characteristics. Those people who have addressed curriculum typically have presented a specific curriculum process without presenting a comprehensive rationale for each of the components, or a discussion of alternatives. Or, they have provided a list of courses or options available within an institution. No literature could be found which specifically laid out the characteristics of curriculum which could be varied by curriculum developers in order to accomplish a specific purpose or change.

In order to proceed, a conceptualization of the curriculum development process had to be developed. First, a list of the major types of questions curriculum designers must answer in order to develop a vocational education curriculum was generated. After the list of major questions was developed, a category label was

created and used in reference to characteristics which address each of those questions. The category labels were created to be as consistent as possible with current curriculum literature. Major sources which contributed to the creation of this conceptualization were the instructional design (ISD) model developed by the military (Department of the Air Force, 1972 & 1978), the Performance-Based Instructional Design (PBID) model (Pucel, 1986, 1987), the systems approach as it has been applied to vocational education (Butler, 1972), the discussion of vocational education curriculum develop presented by Finch & Crunkilton (1984), and the general discussion of curriculum planning considerations by Tyler (1979).

Eleven major questions which need to be addressed in the development of a vocational curriculum were identified. Each of these questions defined a type of curriculum characteristic which must be addressed during curriculum design and revision. They are presented in Table 1.

The conceptual framework was further defined through the development of an instrument designed to access the perceived importance of future characteristics of postsecondary vocational education. The instrument included 29 major sub-questions related to the 11 categories of curriculum characteristics, along with 169 alternative ways of answering them. Respondents were asked to indicate the extent to which each of the alternative answers (items) defined an important aspect of the curriculum of the future. Each item was developed as a Likert scale ranging from 0 to 5. Zero (0) indicated that the characteristic was not legitimate for vocational curricula. One (1) indicated that it was not very important. Five (5) indicated it was important.

Table 1

Categories of Major Questions
Asked During the Design of a Vocational Curriculum

Question	Characteristic Category
1. Which programs should be offered?	Needs Assessment
2. For whom should the programs be designed?	Program Access
3. With which agencies or other institutions should the TIs cooperate?	Articulation
4. What should be the primary job-related focus? (e.g., initial training, retraining, updating)	Program Purpose
5. What are other expected program outcomes for students? (e.g. citizenry, well rounded people and general education)	Other Student Goals
6. How should the content be identified?	Content Identification
7. How should proficiency be measured?	Student Evaluation
8. What form should programs take?	Program Format
Where should the programs be offered?	
When should the programs be offered?	
How should they be delivered? (e.g., courses, modules, full programs)	
9. What are the key components of lessons?	Lesson Structuring
10. What technology should be used to present lessons?	Learning Resources
11. How should the programs be evaluated?	Program Evaluation

Validation of the Conceptual Framework

The conceptual framework for the curriculum characteristics was validated through a 25-member advisory committee. First the basic structure was discussed at an advisory committee meeting, and approved. Second, the instrument was reviewed by each member who was asked to judge the extent to which the items and

potential answers comprehensively addressed issues on which people have to make decisions while developing or revising curriculum. The instrument was also pilot tested with a group of graduate students at the University of Minnesota.

Data Gathering

Ten key groups which would be involved in decision-making concerning the characteristics of the postsecondary vocational education in Minnesota in the future were identified. Samples were drawn from the groups to ensure representation from each of the 33 postsecondary Minnesota Technical Institutes (TIs), each of the 7 vocational education fields, and rural vs. urban programs. The groups included: 1) the Minnesota State Board of Vocational Technical Education (SBVTE) members, 2) SBVTE staff, 3) TI directors, 4) TI assistant directors, 5) TI adult directors, 6) TI curriculum specialists, 7) TI financial aids coordinators, 8) TI counselors, 9) TI instructors, and 10) employers of TI graduates.

The instrument was sent to 497 individuals who were sampled to be representative of each of the groups. After multiple follow-up attempts, an 82% response rate was achieved.

Data Reliability

The reliability of the data was determined using test-retest procedures. A sample of 42 respondents was sent a second questionnaire. Twenty-nine responded (69%) to the second questionnaire. Reliability was determined 1) by correlating responses obtained from the two administrations of the questionnaire, and 2) by determining whether the decisions arrived at through data gathered from the first questionnaire

would have been different than the conclusions that would have been arrived at based on second questionnaire responses. The reliability coefficients for 9 of the 169 items were above .70, for 61 of the items were between .69 and .50, for 60 of the items were between .49 and .30, and for 39 of the items were between .29 and .00. However, the variations in the data between questionnaire administrations would only have changed a decision based on 9 of the 169 items.

Data Analysis

Data were analyzed to determine the overall importance of each curriculum characteristic by examining the overall mean rating for all groups. Ratings of 3 or higher were judged to indicate that a characteristic was important. Ratings of below 3 were judged to indicate a characteristic that was not important. Data were also analyzed using ANOVA to determine differences and similarities between between the importance ratings of the different groups. A sample ANOVA table of differences in the perceptions of the key decision-making groups is presented in Table 2.

Findings

Disagreement Among Groups

There were 169 response alternatives in the questionnaire. Therefore, the number of times one group could disagree with any **one other** group was 169 times. Table 3 presents a summary of the number of times each of the ten key decision-making groups significantly disagreed with another group on items related to a future characteristic of TI programs.

Table 2

Sample ANOVA Table of Differences
in the Perceptions of Key Decision-Making Groups

SQ 1. Rate the following types of institutions in terms of how important it will be to involve them with planning programs.

Item	Overall Group Mean
a. Business and industry	4.944
b. Labor union and professional associations	4.125*
c. State Board of Vocational Technical Education	4.388*
d. Minnesota Board of Education	2.945*
e. Minnesota Department of Jobs and Training	3.850
f. Community colleges	3.239
g. Other TIs	4.135
h. Private vocational schools	2.429*
i. Four year colleges and universities	2.621
j. Secondary schools	3.060*
k. Federal and State agencies	3.391

* Differences among groups significant at the .05 level.

The numbers of significant disagreements between groups ranged from 38 (22.5%) to 0 (0%). The largest numbers of significant disagreements were between instructors and TI directors (38), employers and SBVTE staff (38), employers and TI directors (37), and instructors and the SBVTE staff (34). There were no significant disagreements between the assistant directors and curriculum specialists, or between the adult directors and counselors. Although there were a number of disagreements, the groups tended to agree overall. The groups that disagreed most still agreed about 80% of the time. An analysis of these disagreements was conducted and is presented in the total study

report, but a discussion of that analysis is beyond the scope of this paper (Pucel, DeVogel & Persico, 1987).

Table 3

Matrix of the Number of Times Each of the Ten Decision-Making Groups Disagreed Significantly With Each Other (Number Possible = 169)

	TI Dir	Asst Dir	Adult Dir	Curr Spec	Fin Aid	Couns	Instr	Empl	SBM	SBS
TI Dir	x	2	2	1	16	3	38	37	4	8
Asst Dir		x	1	0	9	2	20	26	5	10
Adult Dir			x	4	10	0	26	33	1	8
Curr Spec				x	12	2	29	32	3	9
Fin Aid					x	5	21	25	8	24
Couns						x	24	20	2	12
Instr							x	17	15	34
Empl								x	24	38
SBM									x	9
SBS										x

TI Dir:	TI Director	Couns:	Counselor
Asst Dir:	Assistant Director	Instr:	Instructor
Adult Dir:	Adult Director	Empl:	Employer
Curr Spec:	Curriculum Specialist	SBM:	SBVTE Member
Fin Aid:	Financial Aid Coordinator	SBS:	SBVTE Staff

Scenario

Based on the characteristics which the overall group rated as important, as well as identified differences and similarities among groups, a scenario for postsecondary vocational education curricula in Minnesota in the year 2000 was developed. Several

assumptions governed the generation of this scenario. First, it was assumed that those curriculum characteristics which are considered important by all of the decision-making groups are likely to be adopted in the vocational curriculum of the future. Second, it was assumed that those characteristics which are considered unimportant by all of the groups are likely not to be adopted. Third, it was assumed that there will be continuing debate over issues on which groups significantly disagree. The following scenario is presented relative to each of the major groups of curriculum characteristics identified by this study. The scenario is presented in the same order as the questions presented in Table 1.

NEEDS ASSESSMENT

LIKELY TO HAPPEN

- o Data will include labor market, student demand, current supply information, and salary.
- o Priority data will be gathered within State, region and local area. Surrounding state information used also.
- o Data will be based on an occupational cluster or industry.
- o Areas for development will be based on similar program availability and how potential programs agree with the State's mission.
- o There will be continuing disagreement about considering cost or time needed for program to become fully operational.
- o Factors affecting program location will include availability of facilities/equipment/staff, location of potential students, location of jobs, equal geographic access of students.
- o There will be continuing debate about whether location of on-the-job training resources should be a factor.

UNLIKELY TO HAPPEN

- o The use of data based on perceived value of the occupation to society, community support, cost of operation, national or international data, or a single company or firm.

PROGRAM ACCESS

LIKELY TO HAPPEN

- o Two governing principles will be (a) programs open based on people's interests and ability to benefit from training, and (b) all programs open to all people.
- o There will be continuing debate about encouraging non-traditional student enrollment in occupations tending not to employ their group in the past.
- o Student recruitment will be from primarily the region, local area, and State.
- o There will be continuing debate about focusing recruitment in a single company.
- o There will be no agreement on admission criteria. Policies being promoted will include open door (first come, first served), prerequisite skills, probability of success, and affirmative action (sex, race, handicap).

UNLIKELY TO HAPPEN

- o The encouragement of enrollment of people similar to those already in occupation.
- o Recruitment on a national basis.
- o Admission based on economic need for employment.

ARTICULATION

LIKELY TO HAPPEN

- o Program planning will include business and industry, SBVTE, other TIs, labor unions, professional associations, the Minnesota Department of Jobs and Training, federal and state agencies, and community colleges.
- o There will be continuing debate about including secondary schools, the Minnesota State Board of Education, or private vocational schools in planning programs.
- o Programs will be offered in cooperation with the seven groups involved in planning (above).
- o There will be continuing debate about involving the Minnesota State Board of Education or the secondary schools in offering programs.

UNLIKELY TO HAPPEN

- o Program planning involving four-year colleges and universities.
- o Offering programs involving four-year colleges and universities, and private vocational schools.

PROGRAM PURPOSE

LIKELY TO HAPPEN

- o Program development purposes will include initial training, retraining, updating and remediation. An additional goal will be preparing students to be good citizens.
- o There will be continuing debate about helping students develop basic skills.

UNLIKELY TO HAPPEN

- o Including the providing of general education as a program purpose.

CONTENT IDENTIFICATION

LIKELY TO HAPPEN

- o Content will focus on job clusters, content generalizable to many firms or companies, subject matter related to many jobs, and specific jobs.
- o There will be continuing debate about including content specific to a particular firm.
- o Content identification will use interviews of job performers and employers, discussions with advisory committees, observing job performers, reviewing job descriptions and task listings, and consulting subject matter experts.
- o There will be continuing debate about using textbooks and other publications to identify content.
- o Cognitive, psychomotor and affective skills will be included.

UNLIKELY TO HAPPEN

- o (No alternatives were considered to be unimportant.)

STUDENT EVALUATION

LIKELY TO HAPPEN

- o Evaluation goals will be to verify skill mastery, motivate students and record student process.
- o Evaluations will assess performance skill, understanding of concepts and theory, and attitude.
- o Methods for evaluating will include skill performance tests, instructor observations, written tests, oral tests and attitude performance tests.

UNLIKELY TO HAPPEN

- o Evaluation with the goal of determining the extent of learning compared to other learners.

PROGRAM FORMAT

LIKELY TO HAPPEN

- o Programs will be located at TIs, in program-related business and industry, or other schools.
- o There will be continuing debate about using conference centers, hotel settings or students' homes.
- o Programs will be offered during the day and the evening, Monday through Friday.
- o There will be continuing debate about offering programs during the day on weekends.
- o Four formats will be used to organize the programs: programs broken down into courses, offered as certificate programs, short, intensive courses to teach limited skills, and Associate of Applied Science degree programs.
- o There will be continuing debate about offering coordinated day school and adult programs, and offering programs as total programs.
- o Lesson delivery formats will include computer-assisted instruction, instructor-delivered instruction and modularized instruction.
- o There will be continuing debate about using teleconferencing.

UNLIKELY TO HAPPEN

- o Programs offered 24 hours a day Monday through Friday, during the evening on weekends, or 24 hours a day on weekends.

LESSON STRUCTURING

LIKELY TO HAPPEN

- o Lessons will include practice, demonstrations, instruction on understanding procedures, feedback, evaluation, and instruction on related theory.
- o Lessons will be defined in terms of the instruction necessary for a person to master a behavior or task.
- o Methods used to deliver content will include demonstrations, practice, on-the-job instruction, computer-assisted instruction, simulations, reading, cooperative learning, and lectures.
- o There will be continuing debate about using role-playing.

UNLIKELY TO HAPPEN

- o Lesson definition in terms of a specific amount of instructional time (e.g., hours, one day).
- o Individual research as an instructional method.

LEARNING RESOURCES

LIKELY TO HAPPEN

- o Learning resources will include (in priority order): tools and equipment (job related), goods and materials (job related), video tapes, instructor-developed instruction sheets, interactive video, learning modules, manufacturers' manuals, telecommunications, textbooks, computers, transparencies, slides, audio tapes, and journal articles.

UNLIKELY TO HAPPEN

- o None of the alternatives presented were considered to be unimportant

PROGRAM EVALUATION

LIKELY TO HAPPEN

- o Groups participating in judging program effectiveness will include employers of graduates, program graduates, potential employers of graduates, the individual TIs, and other vocational educators.
- o There will be continuing debate about the SBVTE role in evaluation of programs.
- o Program evaluation data will include employers' ratings of graduates, graduate placement in related jobs, graduates' ratings of the program, student achievement upon program completion, graduates' job satisfaction, and ratings of the program by other educators.

- o There will be continuing debate about using data concerning the benefits of having completed the program to graduates in the workplace, or student completion rates.
- o Data will be gathered one year or more after a class has graduated, at the conclusion of the program, and during the program.

UNLIKELY TO HAPPEN

- o Participation of the U.S. Office of Education in judging the overall effectiveness of programs.

A CLOSING THOUGHT

> 'Before I draw nearer to that stone to which you point,' said Scrooge, 'answer me one question. Are these the shadows of things that Will be, or are they shadows of the things that May be only?...
>
> 'Men's courses will foreshadow certain ends, to which, if persevered in, they must lead,' said Scrooge. 'But if the courses be departed from, the ends will change.'
>
> --Charles Dickens
> A Christmas Carol

The scenario presented indicates what probably will happen unless major events occur or unless a conscious effort is made to change the future. However, as Scrooge says, things can be changed and ends will change because of them.

Summary

This study developed a list of curriculum characteristics which can be used to describe vocational education curriculum and an instrument to measure them. They have been proven effective in assessing the perceptions of key decision-makers concerning a probably future vocational curriculum. The procedures were useful in identifying disagreements and agreements among the groups as a basis for developing a future scenario of what is likely to happen, and what is likely not to happen. Such information has the potential of allowing policy makers and

curriculum developers to intervene, if they do not wish a particular future to occur.

Selected References

Abbott, M. G., & Eidell, T. L. (1970). Administrative implications of curriculum reform. In R. W. Burns & G. D. Brooks (Eds.), Curriculum design in a changing society. Englewood Cliffs, NJ: Educational Technology Publications.

Burns, R. W., & Brooks, G. D. (1970). Curriculum design in a changing society. Englewood Cliffs, NJ: Educational Technology Publications.

Butler, F. C. (1972). Instructional systems development for vocational and technical training. Englewood Cliffs, NJ: Educational Technology Publications.

Department of the Air Force. (1972 & 1978). Handbook for designers of instructional systems. Washington D.C.: Department of the Air Force. AFP50-58.

Finch, C. R. & Crunkilton, J. R. (1984). Curriculum development in vocational and technical education: Planning, content, and implementation. Boston: Allyn and Bacon.

Pucel, D. J. (1986). Performance-based instructional design. St. Paul: Performance Training Systems.

Pucel, D. J. (1987). The Performance-Based Instructional Design System. Journal of Industrial Teacher Education, 24(4), 27-35.

Pucel, D. J., DeVogel, S. H. & Persico, J. (1987). The Context and Characteristics of Postsecondary Vocational Education Curriculum in the Year 2000: Implications for Policy. St. Paul: MRDC, Department of Vocational and Technical Education, University of Minnesota.

Tyler, R. W. (1979). Curriculum planning in vocational education. In A. Cross (Ed.), Vocational Instruction, American Voc. Assoc.